From: (b) (6)
To: McGuigan, David; Gleason, Patricia
Cc: (b) (6)
Subject: Additional RCG data from (b) (6)
Date: Wednesday, January 22, 2014 3:18:14 PM

Mr Mcguigan, Ms Gleason,
Per our discussion on January 15, 2014, I said I would get back to you when I received a response from the University of Wisconsin regarding the Reed Canary Grass (RCG) used at the Pinnacle Pickle Plant. The following response is from (b) (6). She obtained her degree studying RCG, published a 2003/2004 peer reviewed science paper about N removal and is an expert in RCG's N-removal capacity. Below is her January 21, 2014 response to my questions as well as my January 22, 2014 response back to her. It is my belief based on the data available that the results provided by Pinnacle regarding the N removal at the Pinnacle plant were unattainable, unrealistic and possibly fraudalent. I am again requesting an EPA review into the handling of this NPDES permit.
If you are unwilling to pursue this issue, please advise and I will escalate immediately.
(b) (6)

Dear (b) (6),

To extrapolate the amount of nitrogen removed by harvesting the reed canary grass, the plant tissue should have been analyzed for nitrogen concentration. Was the harvested reed canary grass analyzed for nitrogen (or phosphorous) concentration? If so, that information should be included in the report.

The nitrogen concentration in the plant tissues harvested from our high nutrient treatment was 1.5%. Using this concentration, harvesting 100 pounds of plant biomass would result in harvesting 1.5 pounds of nitrogen. In our report, we averaged the nitrogen concentration of the plant tissues sampled from our low and high nutrient treatments. In the low nutrient treatment, the nitrogen concentration was 1.0% in plant tissues, so the average nitrogen concentration in plant tissues was 1.25%. So, your estimate below (80 to 1 ratio) reflects the average nitrogen concentration that we found.

Based on the information you provided below, the nitrogen concentration in the reed canary grass harvested at the pickle plant would be over 6.6%. I took a very quick look at the literature. From what I found, the nitrogen concentrations reported for reed canary grass were between 0.5% and 2%. (Phosphorous concentrations were 0.1 to 0.4%). Based on these concentrations, the reed canary grass harvested from the pickle plant would have resulted in the removal of ~1000 to ~3700 pounds of nitrogen.

I hope this is helpful. Please let me know if you have any questions.

(b) (6) [redacted]

(b) (6) [redacted]

Thank you very much for taking the time to respond to my questions.

To answer your question, I do not believe the RCG removed from the site was analyzed for Nitrogen concentration.

Based on your response, the nitrogen concentration results from the Pickle Plant appear to be over five times greater (6.6% vs 1.25%) than what your study provided. In addition, based on the pickle plant data I provided to you, only 1000 – 3700 pounds of nitrogen would have been removed from the site not the 12, 286 pounds as provided in the 2012 pickle plant results.

In addition, the 6.6% was a net number after the nitrogen fertilizer was applied in the spring. I believe in my investigation that I read that 80 to 100 pounds per year of nitrogen fertilizer was required per acre of RCG which would equate to 2800 to 3500 pounds for the 35 acre site. Now, if you include the nitrogen fertilizer back into the equation, it raises the pickle plant concentration to 8.2% to 8.5%. This makes the claimed pickle plant level of nitrogen removal 6.6 to 6.8 times greater than what your study indicated.

The nitrogen removal numbers I provided to you may have included credits for groundwater removal and for not growing corn. I am still trying to find out if these additional credits played into the high nitrogen removal numbers stated in the pickle plant results. In any case, I believe the pickle plant results to be overstated and unrealistic. Based on the above, the worst case scenario would be that the nitrogen removed from harvesting did not even cover the nitrogen fertilizer applied in the spring.

I am going back to the Philadelphia Regional EPA people and again request them to investigate the pickle plants results as well as the nutrient offset formulas, techniques, etc.

If I have misrepresented any of your January 21, 2014 response please let me know.

Thank you again for the help,

(b) (6) [redacted]

[redacted]